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REMARKS

Claims 1-36 were pending in this application/prior to the amendments herein. Claims 1-5 and 21-36 are withdrawn. Claim 16 is amended herein. Claims 37-51 are presented. Claims 16-20 and 37-51 are therefore pending.

Response to Claim Objection

In response to the Examiner's suggestion to insert "and" to precede the last limitation, "a second array....", the Claim 16 has been amended to include "and."

The Jeffers Reference

The Examiner rejected Claims 16-18 under 35 U.S.C. § 102(b), citing Jeffers (US 5413763), in light of Day et al. (US 5448070). Applicants respectfully submit that the claims as previously pending are patentable over Jeffers in light of Day. Claim 16, however, has been amended without altering its scope in order to clarify some of the features. These claim amendments are not made for patentability purposes, and it is believed that the claims would satisfy the statutory requirements for patentability without the entry of such amendments.

In contrast to the limitations recited by the claims, Jeffers teaches a technique to measure total organic carbon concentration by using only two specific, fixed wavelengths: 3.8 and 4.3 microns. Jeffers teaches measuring only one analyte, CO₂, using one wavelength that is absorbed by the analyte, and one wavelength that is not absorbed by the analyte. See Jeffers, column 7, lines 35-40.

Jeffers does not teach filter arrays. Moreover, Jeffers does not teach "a first array of filters" and "a second array of filters," but instead only teaches a single "filter blade." Nor does Jeffers teach that a "first array of filters [is] configured to allow electromagnetic radiation of a first set of previously determined values to impinge on the sample element," while a "second array of filters [is] configured to allow electromagnetic radiation of a second set of previously determined values to impinge on the sample element." Indeed, Jeffers teaches a total of only two wavelengths, each selected to be either absorbed by or not absorbed by a single analyte. Thus, Jeffers furthermore does not teach that "the first set of previously determined values [is]

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associated with a first analyte," while "the second set of previously-determined values [is] associated with a second analyte."

The Day Reference

Day discloses that the mid-infrared spectral band pertains to wavelengths ranging from 2.5 micrometers to approximately 14 micrometers (column 1, lines 25-36). In light of the deficiencies of the Jeffers reference noted above, these teachings are not enough to make the claims unpatentable. Applicant notes and agrees with the Examiner that Day does not independently disclose or suggest the limitations of Claim 16.

The Frischauf Reference

Claims 16-18 are rejected under 35 U.S.C. § 102(b) as being anticipated by Frischauf (US 5371020) in light of Turnbull (US 4806762). Applicant respectfully submits that the claims as previously pending are patentable over Frischauf in light of Turnbull. Claim 16, however, has been amended without altering its scope in order to clarify some of the features. These claim amendments are not made for patentability purposes, and it is believed that the claims would satisfy the statutory requirements for patentability without the entry of such amendments.

In contrast to the limitations of the claims, Frischauf (column 8, lines 40-41) teaches a method of measuring analyte concentration using a single band-pass filter (center value 4.2 μm and half bandwidth 0.2 μm). See column 8, line 38-43. Frischauf does not teach "a first array of filters" and "a second array of filters," but instead only teaches a single "band-pass filter." See column 8, line 38-43. Further, Frischauf does not teach that "said first array of filters [is] configured to allow electromagnetic radiation of a first set of previously determined values to impinge on the sample element," while "said second array of filters [is] configured to allow electromagnetic radiation of a second set of previously determined values to impinge on the sample element." Frischauf teaches determining the contents of additional analytes by including additional wavelengths at least equal to the number of additional analytes (column 4 lines 35-44). Frischauf teaches a total of N wavelengths for N analytes, wherein a single wavelength is associated with each of the N analytes and one reference wavelength. See column 4, lines 35-44. Frischauf does not teach a "first set of previously determined values associated with a first

analyte," while "a second set of previously determined values" is "associated with a second analyte."

The Turnbull Reference

Turnbull discloses a detector for detecting thermal radiation, which pertains to wavelengths ranging from 5 to 15 micrometers. See, e.g., the Turnbull abstract. In light of the deficiencies of the Frischauff reference noted above, these teachings are not enough to make the claims unpatentable. Applicant agrees with the Examiner that Turnbull does not independently disclose or suggest any feature of Claim 16.

The Shepherd Reference

Claim 16 is rejected under 35 U.S.C. § 102(b) as being anticipated by Shepherd et al. (US 6262798) in light of Panish (US 4184171). Applicant respectfully submits that the claims as previously pending are patentable over Shepherd in light of Panish. Claim 16, however, has been amended without altering its scope in order to clarify some of the features. These claim amendments are not made for patentability purposes, and it is believed that the claims would satisfy the statutory requirements for patentability without the entry of such amendments.

In contrast to the limitations recited in the claims, Shepherd teaches a method and apparatus to measure the total hemoglobin concentration of blood by assessing the optical transmittance of a sample of unaltered whole blood. Shepherd teaches using one optimal wavelength pre-selected for each analyte to be measured. See e.g. column 4 line 66 through column 5 line 2. Shepherd does not teach "a first array of filters" and "a second array of filters," such that the "said first array of filters [is] configured to allow electromagnetic radiation of a first set of previously determined values to impinge on the sample element," while "said second array of filters [is] configured to allow electromagnetic radiation of a second set of previously determined values to impinge on the sample element." Shepherd further does not teach that "the first set of previously determined values [is] associated with a first analyte," while "the second set of previously-determined values [is] associated with a second analyte." In fact Shepherd teaches away from using a distinct set of wavelengths for measuring an analyte. For e.g. in column 9 lines 45-55, Shepherd teaches using six measuring wavelengths; each of the six

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wavelengths is configured to measure one of the following analyte: HbO₂, HbCO, Hi, Hb, SHb and bilirubin. Thus Shepherd teaches using only a single wavelength, not a distinct set of wavelengths, to measure an analyte.

The Panish Reference

Panish discloses that LEDs emit radiation with a wavelength range of about 3.5 – 5.5 micrometers. See, e.g., the abstract of Panish. In light of the deficiencies of the Shepherd reference noted above, these teachings are not enough to make the claims unpatentable. Applicant also notes and agrees with the Examiner that Panish does not independently disclose or suggest any feature of Claim 16.

The Nordal Reference

Claims 16-20 are rejected under 35 U.S.C. § 102(b) as being anticipated by Nordal (US 4620104) and in light of Day and Chang et al (US 5611004). Applicant respectfully submits that the claims as previously pending are patentable over Nordal in light of Day and Chang. Claim 16, however, has been amended without altering its scope in order to clarify some of the features. These claim amendments are not made for patentability purposes, and it is believed that the claims would satisfy the statutory requirements for patentability without the entry of such amendments.

Nordal does not teach or suggest "a device for measuring the concentration of one or more analytes in a material sample." In fact Nordal teaches an infrared radiation source arrangement for infrared spectral analysis. Nordal's arrangement teaches the use of a specific analytic wavelength and a reference wavelength, see e.g. column 7 line 67 through column 8 line 3. Nordal does not teach "a first array of filters" and "a second array of filters," such that the "said first array of filters [is] configured to allow electromagnetic radiation of a first set of previously determined values to impinge on the sample element," while "said second array of filters [is] configured to allow electromagnetic radiation of a second set of previously determined values to impinge on the sample element." Nordal further does not teach that "the first set of previously determined values [is] associated with a first analyte," while "the second set of previously-

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determined values [is] associated with a second analyte." In fact Nordal teaches away from using a distinct set of wavelength for measuring an analyte see c.g. column 8 lines 38 – 44.

The Day and Chang References

Day discloses that the mid-infrared spectral band pertains to wavelengths ranging from 2.5 micrometers to approximately 14 micrometers (column 1, lines 25-36). In light of the deficiencies of the Nordal reference noted above, these teachings are not enough to make the claims unpatentable. Applicant also notes and agrees with the Examiner that Day does not independently disclose or suggest any feature of Claim 16.

Chang discloses that an acousto-optical filter is an electronically tunable optical bandpass filter (column 1, lines 22-23). Nordal discloses optical bandpass filters. See Figure 1. The Applicant respectfully submits that while it is true that an acousto-optical filter is an electronically tunable optical bandpass filter, the converse that all optical bandpass filters are electronically tunable is not true. Therefore the Applicant respectfully disagrees with the Examiner that Nordal inherently discloses electronically-tunable filter.

The Jeng '182 Reference

Claims 16-20 are rejected under 35 U.S.C. § 102(b) as being anticipated by Jeng et al (US 6087182) and in light of Day. Applicant respectfully submits that the claims as previously pending are patentable over Jeng in light of Day. Claim 16, however, has been amended without altering its scope in order to clarify some of the features. These claim amendments are not made for patentability purposes, and it is believed that the claims would satisfy the statutory requirements for patentability without the entry of such amendments.

Jeng '182 does not teach "a first array of filters" and "a second array of filters," such that the "said first array of filters [is] configured to allow electromagnetic radiation of a first set of previously determined values to impinge on the sample element," while "said second array of filters [is] configured to allow electromagnetic radiation of a second set of previously determined values to impinge on the sample element." Jeng '182 further does not teach that "the first set of previously determined values [is] associated with a first analyte," while "the second set of previously-determined values [is] associated with a second analyte."

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The Jeng '045 Reference

Claims 16-20 are rejected under 35 U.S.C. § 102(e) as being anticipated by Jeng et al (US 6426045) and in light of Day. Applicant respectfully submits that the claims as previously pending are patentably distinguished over Jeng in light of Day. Claim 16, however, has been amended without altering its scope in order to clarify some of the features. These claim amendments are not made for patentability purposes, and it is believed that the claims would satisfy the statutory requirements for patentability without the entry of such amendments.

Jeng '045 does not teach "a first array of filters" and "a second array of filters," such that the "said first array of filters [is] configured to allow electromagnetic radiation of a first set of previously determined values to impinge on the sample element," while "said second array of filters [is] configured to allow electromagnetic radiation of a second set of previously determined values to impinge on the sample element." Jeng '045 further does not teach that "the first set of previously determined values [is] associated with a first analyte," while "the second set of previously-determined values [is] associated with a second analyte."

As described above, Claims 16-18 are patentable over the cited references. Applicant respectfully requests that the Examiner withdraw the rejection over Claims 16-18 and allow Claims 16-18.

Response to Rejections Under 35 U.S.C. § 103

Claims 19-20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Jeffers in light of Day and further in view of French (US 4676642)

Claims 19-20 depend from Claim 16. As described above, Claim 16 is patentable over Jeffers in light of Day and further in view of French. Thus Claims 19-20 include all of the features of Claim 16 and recite unique combinations of additional features not taught or suggested by Jeffers in light of Day and further in view of French. Applicant respectfully requests, therefore, that the rejections of Claims 19-20 be withdrawn

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Withdrawal of Restriction Traversal

Applicant has previously traversed the Examiner's restriction of the pending claims into four groups of distinct inventions. The Examiner nevertheless deemed the restriction requirement proper and made it final. Applicant hereby withdraws traversal of the restriction requirement and concurs that such a requirement is proper.

No Disclaimers or Disavowals

Although the present communication may include alterations to the claims, or characterizations of claim scope or referenced art, the Applicants are not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. The Applicants reserve the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that the Applicants have made any disclaimers or disavowals of any subject matter supported by the present application.

Summary

Applicant respectfully submits that all of the pending claims are allowable. Applicant respectfully requests that the Examiner withdraw the rejections and allow Claims 16-21 and 37-51.

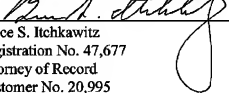
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Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

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By: 
Bruce S. Itchkawitz
Registration No. 47,677
Attorney of Record
Customer No. 20,995
(949) 760-0404

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